1. A chemical mechanical polishing apparatus to polish a substrate having a first surface and a second surface underlying the first surface, comprising:

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a first polishing station having a first optical system, the first optical system including a first light source to generate a first light beam to impinge the substrate as it is polished at the first polishing station, the first light beam having a first effective wavelength, and a first sensor to measure light from the first light beam that is reflected from the first and second surfaces to generate a first interference signal; and

a second polishing station having a second optical system, the second optical system including a second light source to generate a second light beam to impinge on the substrate as it is polished at the second polishing station, the second light beam having a second effective wavelength that differs from the first effective wavelength, and a second sensor to measure light from the second light beam that is reflected from the first and second surfaces to generate a second interference signal; and

at least one processor to determine a polishing endpoint at the first and second polishing stations from the first and second interference signals, respectively.

- 2. The apparatus of claim 1, wherein the first effective wavelength is greater than the second effective wavelength.
- 3. The apparatus of claim 2, wherein the first light beam has a first wavelength and the second light beam has a second wavelength that is shorter than the first wavelength.
- 4. The apparatus of claim 3, wherein the first wavelength is between about 800 and 1400 nanometers.
- 5. The apparatus of claim 3, wherein the second wavelength is between about 400 and 700 nanometers.

6. The apparatus of claim 1, further comprising a third polishing station having a third optical system, the third optical system including a third light source to generate a third light beam to impinge on the substrate as it is polished at the third polishing station, the third light beam having a third effective wavelength, and a third sensor to measure light from the third light beam that is reflected from the first and second surfaces to generate a third interference signal.

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- 7. The apparatus of claim 4, wherein the third effective wavelength is smaller than the second effective wavelength.
- 8. The apparatus of claim 4, wherein the third effective wavelength is equal to the second effective wavelength.
 - 9. The apparatus of claim 1, further comprising a carrier head to move a substrate between the first and second polishing stations.
 - 10. The apparatus of claim 1, wherein each polishing station includes a rotatable platen with an aperture through which one of the first and second light beams can pass to impinge the substrate.
 - 11. The apparatus of claim 8, wherein each polishing station includes a polishing pad supported on a corresponding platen, each polishing pad having a window through which one of the first and second light beams can pass to impinge the substrate.
- 12. A method of chemical mechanical polishing, comprising:
 polishing a substrate at a first polishing station;

 35 generating a first interference signal by directing a first light beam having a first effective wavelength onto the substrate and measuring light from the first light beam

reflected from the substrate;

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detecting a first endpoint from the first interference signal;

after detection of the first endpoint, generating a second interference signal by directing a second light beam having a second effective wavelength onto the substrate and measuring light from the second light beam reflected from the substrate, wherein the second effective wavelength differs from the first effective wavelength; and

detecting a second endpoint from the second interference signal.

- 13. The method of claim 12, wherein the first effective wavelength is larger than the second effective wavelength.
- 14. The method of claim 13, wherein the first light beam has a first wavelength and the second light beam has a second wavelength that is shorter than the first wavelength.
- 20 15. The method of claim 14, wherein the first wavelength is between about 800 and 1400 nanometers.
 - 16. The method of claim 14, wherein the second wavelength is between about 400 and 700 nanometers.
 - 17. The method of claim 12, wherein the step of generating the second interference signal occurs at the first polishing station.
- 18. The method of claim 12, further comprising transferring the substrate to a second polishing station after detection of the first endpoint.
- 19. The method of claim 12, further comprising:

 after detection of the second endpoint, generating a third interference signal by directing a third light beam having a third effective wavelength onto the substrate and

measuring light from the third light beam reflected from the substrate; and

detecting a third endpoint from the third interference signal.

- 20. The apparatus of claim 19, wherein the third effective wavelength is smaller than the second effective wavelength.
- 21. The apparatus of claim 19, wherein the third effective wavelength is equal to the second effective wavelength.

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